torbico

delivering tomorrow's bioenergy

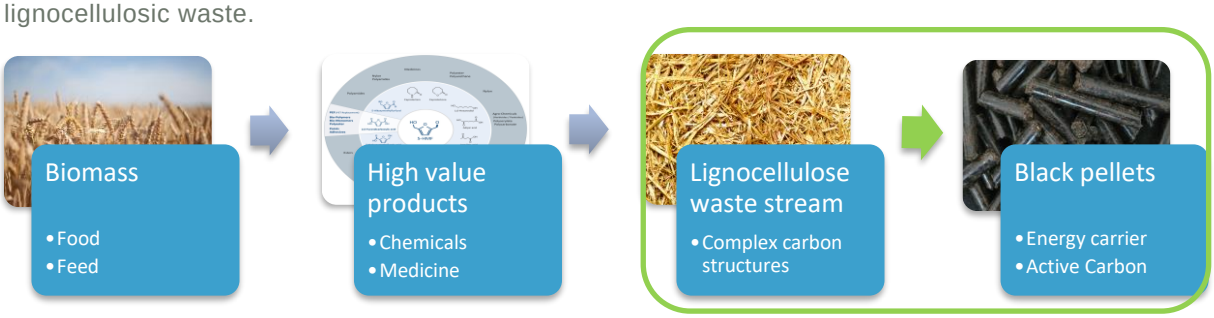
TORBICO DEVELOPS AND SELLS SYSTEMS TO UPCYCLE BIOMASS WASTE

It is our mission to enable the world wide, sustainable, and commercially viable recovery of energy from vegetable waste streams

Hereto Torbico is developing containerized torrefaction systems for the conversion of biomass waste streams into solid bio fuels and sell these systems to owners of biomass waste streams worldwide.

TORREFACTION ALLOWS UPCYCLING OF LIGNOCELLULOSIC WASTE

Existing industrial and agricultural processes as well as new bio-based processes ultimately have lignocellulosic waste.

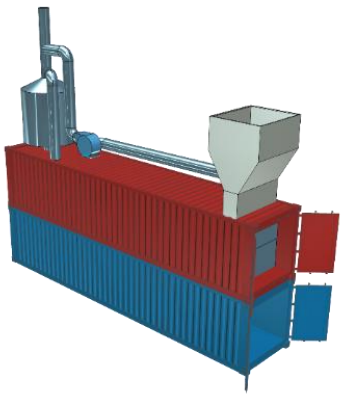


This waste is often left to rot, i.e. it is returned to CO_2 and methane, without using the available energy. Torrefaction is the economically and ecologically preferred conversion technology for vegetable waste streams as it has the highest return per GJ and the lowest CO_2 footprint.

The end-product of torrefaction is a carbon neutral, on-demand biofuel that is almost as energy dense as fossil coal, that does not absorb water, is not sensitive to rot and decay, and is easily grindable.

TORBICO HAS RESOLVED TORREFACTION CHALLENGES

Torbico, with fundamental research from the Technical University of Eindhoven, has resolved all business blocking issues from the 1st generation torrefaction systems and is now able to produce homogeneous end-product consistently from various types of biomass waste at cost levels below those of wood pellets.



The system design is based on standard 40' containers and the process control is based on a patent pending oxygen injection technology. This technology not only guarantees a consistent output, it also guarantees homogenously torrefied biomass, even from larger particles. In addition it increases the system performance and eliminates the pyrophoric behavior of torrefied material.

TORBICO SYSTEMS PROVIDE CUSTOMERS AN EXCELLENT BUSINESS CASE

With the existing wood-pellet market as benchmark, Torbico has been able to reduce production cost per unit of energy by 15%-20% using identical feedstock (wood). Using alternative feedstocks, CAPEX and OPEX can be further reduced by up to 55% and the feedstock price reduces up to 70% for some of the waste streams. The ultimate product, the black pellet, has 40% higher energy density, resulting in 40% transportation cost reduction.

The IRR for Torbico's customers is between 25%and 40% with alternative feedstocks, against a reference case of 10% for wood plants.